In the Claims:

Please enter the following amended Claims:

1. (Amended) A method for producing an antibody heterodimer comprising:

(i) obtaining or constructing a DNA molecule that encodes an antibody molecule heavy chain that has a desired binding specificity and introducing at least one cysteine codon therein via recombinant DNA mutagenesis;

(ii) expressing said DNA molecule in a suitable host cell, or expression system, together with a DNA molecule that encodes an antibody molecule light chain of desired specificity, to produce an antibody molecule containing said introduced cysteine residue;

(iii) purifying said antibody molecule from said host cell or expression system;

(iv) contacting said purified antibody molecule with an amount of a suitable reducing agent sufficient to partially reduce the intra or inter molecular disulfide bonds of said antibody molecule and thereby enhance the formation of antibody dimers; and

(v) allowing sufficient time for the dimerization reaction to proceed; thereby producing said antibody heterodimer.

5. (Amended) The method of Claim 1, which results in an IgG/IgG dimer which activates components of the complement system.

7. (Amended) The method of Claim 1, which results in an IgG/IgG dimer that binds to Fcγ receptors on cytotoxic effector cells.

dimer which initiates programmed cell death (apoptosis).

24. (Amended) A method for producing an antibody heterodimer comprising:

(i) obtaining or constructing a DNA molecule that encodes an antibody molecule heavy chain that has a desired binding specificity and introducing at least one cysteine codon therein via recombinant DNA technologies;

(ii) expressing said DNA molecule in a suitable host cell, or expression system, together with a DNA molecule that encodes an antibody molecule light chain of desired binding specificity, to produce an antibody molecule containing said introduced cysteine residue;

(iii) purifying said antibody molecule from said host cell or expression system;

(iv) contacting said purified antibody molecule with an amount of a suitable reducing agent sufficient to partially reduce the intra or inter molecular disulfide bonds of said antibody molecule and thereby enhance the formation of antibody dimers; and

(v) adding a thiol reactive group introduced on another antibody molecule which does not have a cysteine group introduced therein and allowing sufficient time for the dimerization reaction to proceed thereby producing said antibody heterodimer

28. (Amended) An IgG/IgG dimer produced by the method of Claim 22, wherein said IgG's are of the same or different IgG subclass.

37. (Amended) A method for producing an antibody heterodimer comprising:

least one cysteine codon therein via site specific mutagenesis;

(ii) expressing said DNA molecule in a suitable host cell, together with a DNA molecule that encodes an antibody light chain, to produce an antibody molecule containing said introduced cysteine residue;

(iii) purifying said antibody molecule from said host cell;

(iv) contacting said purified antibody molecule with an amount of a suitable reducing agent sufficient to partially reduce the intra or inter molecule disulfide bonds of said antibody molecule and thereby enhance the formation of antibody dimers; and

(v) cross-linking the reduced antibody molecules using a BIS-maleimido cross-linker thereby producing said antibody heterodimer.

41. A pharmaceutical composition comprising an IgG/IgG dimer according to Claim 22, and a pharmaceutically acceptable carrier.

45. (Amended) A method for producing an IgG/IgG dimer comprising genetically engineering a first IgG MAb to introduce a cysteine molecule placed in a position which inhibits or prevents formation of an intramolecular disulfide bridge between sister heavy chains on the same antibody molecule and exposing said first Mab to a second IgG Mab to produce said IgG/IgG dimer.

46. (Amended) An IgG/IgG dimer produced by the method of Claim 45.

47. (New) The method of Claim 1, further comprising

(vi) terminating the reducing reaction by the addition of

48. (New) The method of Claim 24, further comprising

(vi) terminating the reducing reaction by the addition of cysteine or other thiol blocking reagent.

49. (New) The method of Claim 37, further comprising

(vi) terminating the reducing reaction by the addition of cysteine or other thiol blocking reagent.